

What is COPD?

COPD stands for Chronic Obstructive Pulmonary Disease. It is a long-term lung disease that makes it difficult for air to move into and out of the lungs.

COPD is used to describe a few lung diseases with similar symptoms that make breathing difficult: the most common are chronic bronchitis and emphysema.

Many people with COPD have both chronic bronchitis and emphysema. In the majority of cases, COPD is caused by cigarette smoking. Shortness of breath (or a “need for air”), increased mucous and coughing are symptoms that are frequently seen in people with COPD. Some people even say that it feels like they’re breathing through a straw.

COPD is a disease that progresses slowly. Even though it is not fully reversible, treating it early can greatly improve symptoms, even in the very early stages of the disease. The sooner people with COPD can be relieved of their symptoms, the faster they can get back to taking part in their favourite and everyday activities.

How many people have COPD in Canada?

There are over 1.5 million Canadians who have been diagnosed with COPD. However, a recent report shows that as many as 1.6 million more Canadians may have COPD but remain undiagnosed. This confirms medical knowledge that COPD is dramatically under-diagnosed and under-treated.

While COPD is not as well-known as other major illnesses, COPD is the fourth leading cause of death in Canada surpassed only by heart disease, stroke and respiratory infections. Doctors predict that by the year 2020, COPD will rise to become the third leading cause of death in Canada and around the world.

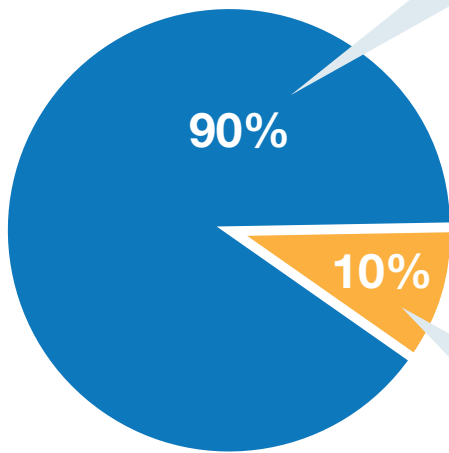
Who gets COPD?

COPD is a crucial health issue in both men and women. COPD was once more common in men, but it now affects men and women almost equally. The increased prevalence of COPD in women coincides with the rise in female cigarette smokers since the 1960s.

COPD is a disease that progresses slowly, and the signs and symptoms of COPD are not always noticeable in the early stages. Symptoms won’t appear until people are in their 40s, 50s or 60s. How quickly the symptoms appear depends in part on how much and how often you smoked. Lung damage, however, can develop long before symptoms are noticeable. Therefore, the sooner COPD is diagnosed, the sooner treatment can begin to stabilize symptoms and prevent further lung damage.

What causes COPD?

Many people think common COPD symptoms such as coughing and breathlessness are just a normal part of getting older, but this is not the case.



Cigarette smoking is the most important cause of COPD by far, as it is responsible for about 90% of cases. The longer someone smokes, the greater their chances of developing COPD. Smoking pipes or cigars can also lead to COPD.

Other things that can cause COPD are:

- **Second-hand smoke:** Second-hand smoke contains over 4,000 chemicals. Two-thirds of the smoke from a cigarette is not inhaled by the smoker, but lingers in the air around the smoker.
- **Air pollution at work and in the environment:** Exposure to dust or chemical fumes polluting the air can worsen or cause COPD.
- **Having repeated chest infections during childhood:** People who have had repeated lung infections as children, which prevented their lungs from developing normally, have a higher risk of developing COPD later on in life.
- **A rare genetic disorder called alpha-1 antitrypsin deficiency:** This disorder is hereditary (tends to run in families) and can cause lung or liver disease. With this condition, the lungs can get easily damaged over time, which could lead to COPD.

Can COPD be prevented?

Most of the time, COPD can be prevented. Since most cases of COPD are caused by smoking, people can prevent COPD by not smoking. Smokers can reduce their chance of getting COPD by quitting as soon as possible – it's never too late to quit.

Can COPD be slowed down?

If you have COPD and you smoke, the most effective way to slow down the disease's progression and to relieve your symptoms is to quit smoking. However, if you can't quit "cold turkey", you may consider using smoking cessation products or even cutting down on the number of cigarettes a day that you smoke – every little bit counts. There are also medications and lifestyle changes that can help control symptoms and delay the development of the disease.

Smoking and lung function

Lung function naturally decreases with age. As a result, people may become more breathless as they get older. They may find that doing activities they once found easy to perform have now become more difficult. Cigarette smoking greatly accelerates this decline in lung function. The decline in lung function can be slowed down once someone stops smoking.

Ex-smokers can be affected by COPD

If you have smoked in the past, COPD may still impact your lung health. Congratulations on quitting smoking... it means that you have now slowed the progression of COPD. However, the fact that you have smoked in the past means that your lungs have permanent damage and are likely less effective than someone who has never smoked. You could have a greater likelihood of developing COPD. If you have COPD symptoms, it is important that you speak to your doctor.

People who feel out of breath should talk to their doctor – even if they are smokers

It takes courage for smokers with breathing problems to make an appointment with their doctor and get their breathing checked out. Smokers often feel guilty about their habit and avoid bringing up problems like wheezing, shortness of breath or coughing with their doctor. But avoiding the “quit smoking” lecture is not a good reason to put off getting a correct diagnosis on what’s causing your breathing problems. What counts is getting proper treatment in order to feel better and get the most enjoyment out of life.

When it comes to COPD quitting smoking is the most significant action that can be taken to avoid causing further damage to the lungs. Today, doctors can provide their patients with tools and tricks – or even medication – that will help them quit smoking when they are ready. Smokers who are not ready to quit should be honest about their intentions with their doctor. With the right treatment, patients with COPD can get relief of their symptoms, whether or not they have quit smoking.

We have provided you with some websites where you can get tips on how to quit smoking for good; see the section entitled **Resources and links to help with quitting smoking**.

What does COPD do to the lungs?

The primary function of the lungs is to provide oxygen (fresh air) to the blood and to remove carbon dioxide (used air) from the body.

Normal breathing

Every time you breathe, air is drawn into your lungs, along with dust and pollutants. Many of the dust and pollutant particles stay trapped inside the nose, while others stick to the mucous membrane in the airways. The mucous membrane, which is the lining that coats the inside of the airways, stays lubricated to protect the airways from damage.

Tiny hairs called cilia line the mucous membrane of the airways; their role is to move particles out of the airways and into the throat. To do so, the particles are mixed with mucus that the lungs secrete. Once in the throat, mucus is then swallowed or removed by coughing. This process prevents foreign particles from reaching the lower airways and doing damage to the **bronchioles** and **alveoli**.

Bronchioles are tube-shaped parts of the airways in the lungs that branch out into smaller and smaller airways, bringing air to and from the alveoli.

Alveoli are grape-shaped clusters of tiny air sacs where oxygen enters the bloodstream and carbon dioxide exits.

Breathing with COPD

In people with COPD, breathing is difficult because the airways are swollen and obstructed or blocked. The disease can also cause damage in the alveoli.

COPD makes it hard to breathe because:

- The bronchioles and alveoli in the lungs lose their shape and stretchiness which limits the air that can be taken in and expelled
- The walls between many of the alveoli are destroyed which makes it more difficult to take in oxygen
- The walls of the airways become thick and swollen making it harder for air to pass through
- The mucous membranes produce more mucus than usual, which blocks the airways

Emphysema: how COPD affects the alveoli

In someone with emphysema, air becomes **trapped** in the lungs because the damaged alveoli do not deflate when the person exhales (breathes air out). This is because of a loss of elasticity (stretchiness) in the alveoli. Inflammation (swelling) can also cause bronchioles to collapse.

- Air that cannot be breathed out is **trapped** in the alveoli. This also makes it hard for the body to take in the oxygen it needs.
- Airways become swollen and filled with mucus, making breathing difficult.

Chronic bronchitis: how COPD affects the bronchioles

In someone with chronic bronchitis, the airways become irritated, swollen and narrowed, and the lining of each bronchiole produces excess mucus. Chronic bronchitis makes breathing difficult because it partly blocks the air from passing through the airways.

What are the common signs and symptoms of COPD?

COPD is more than a smoker's cough. It is a chronic disease with symptoms that increase in severity over time. The main symptoms of COPD are:

- Shortness of breath
- Coughing up a lot of clear and thick mucus (phlegm)
- Wheezing
- Feeling tired (fatigue)
- Frequent chest infections (colds, flu, etc.)

There are ways to measure to what degree COPD affects regular airflow in the lungs. A simple **spirometry** test can be used to determine the extent of airway obstruction by measuring how much air can be moved out of the lungs. You can read more about spirometry testing in the section entitled **Screening for COPD**.

Flare-ups (exacerbations): periods of worsening symptoms

People who already have COPD can have flare-ups (exacerbations), which are periods during which their symptoms of COPD get a lot worse. Severe air pollution, common allergens, and viral or bacterial infections may cause flare-ups. Signs of a flare-up include an increased severity in the symptoms listed above; some people who experience a COPD flare-up can also have a fever, swollen ankles or bluish lips and fingers because of poor circulation, can feel sick, dizzy, anxious or confused, or may experience chest pain.

What happens as COPD progresses?

With time, as COPD becomes more severe, pneumonia and other lung infections may occur more often. Even common activities of daily living such as simple chores, washing and dressing can cause shortness of breath. In severe cases, people can wake up with headaches every morning because their breathing becomes more difficult during sleep. Once the symptoms of COPD have set in, they can lead to other illnesses or death. Some complications of COPD are:

- Recurring chest infections (including pneumonia, the flu, etc.)
- Higher-than-usual blood pressure in lung's arteries (pulmonary hypertension)
- Enlargement and strain on the right side of the heart (cor pulmonale)
- Irregular heartbeat (arrhythmias)
- Loss of lung's ability to function (respiratory failure)

There is hope for people with COPD: **COPD symptoms can be treated**. With early diagnosis and the right treatment, people with COPD can lead active lives and live for many years.

If you have COPD, how long – and how well – you'll live depends on:

- At what age you were diagnosed
- How bad your lung damage is
- Whether you keep smoking, cut back or quit (quitting is ideal)
- What kind of medical care and treatment you get
- What other health problems you may have

How do I know if I have COPD?

The sooner COPD is diagnosed, the easier it is to treat. For this reason, it is essential to catch symptoms early, especially in smokers or former smokers.

Put yourself to the COPD screening test

The signs of COPD are not always noticeable in the early stages. In fact, many people blame a cough or a decline in fitness on aging or a smoker's cough.

If you are over 40 and currently smoke cigarettes, or have smoked in the past, you may be at risk for developing COPD.

If you are concerned about your lung health, take the [Canadian Lung Health Test](#). If you feel you may be at risk for COPD, speak to your doctor and bring your results of the Canadian Lung Health Test for discussion during your next checkup. **Ask your doctor about taking a simple breathing test called spirometry to confirm if you have COPD.**

If you are a smoker or a former smoker and you're over 40, take the [Canadian Lung Health Test](#) to see if you're at risk for COPD.

How is COPD diagnosed?

To find out if someone has COPD, a doctor may ask a series of questions and run some tests, such as spirometry.

A doctor may ask their patient:

- What is your smoking history?
- Do you suffer from shortness of breath?
- What makes your shortness of breath worse?
- Do you cough?
- Do you bring up sputum (phlegm, mucus), and if so, what does it look like?
- What is your family history of lung disease?

A doctor may run some of the following tests if they suspect COPD:

• Chest X-ray

The X-ray will help the doctor see if there is damage to the lungs.

• Blood test

This measures the amount of oxygen and carbon dioxide in the blood.

• Spirometry

Spirometry is a way of determining how well the lungs work by measuring the airflow of the lungs.

Spirometry is a common and effective diagnostic test that can easily be done in a doctor's office or at a nearby hospital or clinic. The doctor asks the patient to blow, as long and hard as they can, into a small tube attached to a machine called a spirometer. The machine measures how long it takes to blow out all the air from the lungs. The more blocked the airways, the longer it takes to blow the air out. Spirometry is the most reliable method of testing lungs.

From the spirometry measurements taken, the doctor makes calculations and can determine if a patient has COPD.

Spirometry Calculations:

- *Two calculations are done: forced expiratory volume in one second (FEV_1) and forced vital capacity (FVC)*
- *FEV_1 is the volume of air that can be forced out in one second after taking a deep breath*
- *FVC is the total amount of air that can forcibly be blown out after full inspiration*
- *A doctor makes a diagnosis of COPD when FEV_1 divided by FVC (FEV_1/FVC) falls below a value of 0.7*
- *Sometimes, a doctor takes these same measurements when they see a patient periodically to determine if COPD is progressing*

The Canadian Thoracic Society (CTS) classifies COPD as mild, moderate or severe, based on which symptoms a person has and on severity of symptoms. COPD is also commonly classified based on the severity of airway obstruction measured using spirometry testing.

COPD stage	Symptoms and measurements
At risk (not yet COPD)	Smoker or former smoker with no COPD symptoms, or chronic cough/mucus
Mild	Shortness of breath from COPD with small effort (hurrying on level or walking up a slight hill)
Moderate	Shortness of breath from COPD causing the person to stop walking after approximately 100 m or after a few minutes on the level
Severe	Shortness of breath from COPD causing the person to be too breathless to leave the house or breathless when dressing or undressing; or, presence of complications of COPD such as other chronic diseases in the lungs or heart

How is COPD different from asthma?

Although COPD and asthma have some symptoms in common (including wheezing, shortness of breath and coughing), the processes involved in COPD are different in many ways from those that cause asthma. For example, asthma involves only the bronchial tubes and does not affect the air sacs (alveoli) or the lung tissue itself. In fact, there are many aspects of the diseases that set them apart.

	COPD	Asthma
Age at which it appears	40s, 50s or 60s	Childhood or adolescence
Impact of smoking (at present or in the past)	9 in 10 cases are in smokers or former smokers	Smoking has no impact on development
Presence of symptoms	Chronic, persistent and progressing slowly over the years; people with COPD rarely experience a day without symptoms	Intermittent and completely reversible with the use of medication; people with asthma also tend to be symptom-free between flare-ups
Portions of the lungs that are affected	The bronchioles, alveoli and mucous membranes become damaged	The bronchial tubes become constricted

How is COPD treated?

There is no cure for COPD, but it is possible to slow down the disease and treat the symptoms. COPD can be managed by the following:

- Quitting smoking
- Taking medications, which may include pills, puffers, and supplemental oxygen
- Joining a pulmonary rehabilitation class, a specialized exercise program

Treatments for COPD

Medications

- Your doctor may prescribe medications to reduce your symptoms of COPD. Be sure to take all medications the way your doctor instructs you.
- Different medications may be prescribed to manage COPD.
- Below are examples of medication specifically prescribed for COPD.

A. Bronchodilators

- Bronchodilators help reduce your breathing effort. They open up the airways in your lungs to relieve or reduce shortness of breath and wheezing.
- Because they work for different lengths of time, they are usually called “short-acting” or “long-acting” bronchodilators.
- There are three types of bronchodilators:

1. Anticholinergics

- Short-acting: Atrovent® (ipratropium bromide)
- Long-acting: Spiriva® (tiotropium bromide monohydrate)
- Side effects could include a bitter taste or dry mouth. Other side effects could include: urinary retention, urinary tract infection and irregular heartbeat

2. Beta2-agonists

- Short-acting: Airomir® and Ventolin® (salbutamol sulfate)
- Long-acting: Serevent® (salmeterol xinafoate)
- Side effects could involve the cardiovascular system and the central nervous system including: rapid or irregular heartbeat, flushing, angina, irritability, sleepiness and tremor.

3. Methylxanthines – Uniphyll® (theophylline)

- Side effects could include nausea and heartburn. Methylxanthines can interact with food and other drugs

B. Anti-Inflammatories

- Anti-inflammatories help treat inflammation of the airways and help reduce the frequency of exacerbations (flare-ups). Anti-inflammatories may need to be used with bronchodilators in COPD.

1. Combination: Inhaled long-acting beta₂-agonist and inhaled anti-inflammatory are recommended for those who have already tried a bronchodilator or a combination bronchodilator, but have done poorly on the treatment.

- Advair® (salmeterol xinafoate-fluticasone propionate)
- Side effects of ICS (Inhaled Corticosteroids) include hoarseness, glaucoma, decrease in bone density and oral thrush.

Living with COPD: taking charge of your own care

If you are living with COPD, there are many things you can do to live as long, as active and as comfortable a life as possible. Talk to your doctor to get proper care and treatment for COPD. You can also find out from him or her what kind of care you will need in future years as the disease progresses, and what you can do now to stay healthy as long as possible. Many times when medication is prescribed, it is provided for a specific amount of time. It is critical that you follow the doctor's directions carefully as far as the dosage and duration. This will ensure that the medication will be most effective.

How can I take charge now?

Taking an active interest in managing COPD is the first step in taking charge of your health. Whether you are in the early or later stages of COPD, there are steps you can take to prevent further lung damage and make you feel better.

- **Quitting smoking:** the single most important thing you can do to help yourself. However, if you are unable to quit smoking, there are still benefits from being treated for COPD.
- **Caring for yourself:** stay positive, keep moving and eat well.
- **Pulmonary rehabilitation** (also called respiratory rehabilitation): get the most out of every breath.

Caring for yourself

A positive attitude

Being breathless because of COPD is extremely unpleasant and will have an impact on many parts of your life. If you feel that your COPD symptoms are preventing you from carrying on with the activities you enjoy, it can be easy to fall into a vicious circle where you stop yourself from doing things you like and feel down because of it. Relaxing and having a positive attitude will help you get the most out of life.

It is important for you, now more than ever, to exercise and eat well. Your physical and mental well-being depends on it.

Exercise

Exercise is an important part of a healthy life. If your heart and breathing muscles are in shape, they can work with less oxygen. Your exercises don't have to be fancy or complicated, but they do have to be performed safely and on a regular basis. Even a small amount of exercise is better than none at all.

Exercise is important to:

- Make routine activities like shopping, cooking and cleaning easier
- Help you use oxygen more efficiently
- Maintain a healthy weight
- Improve your mood and your sleep

Speak with your doctor to find out what types of exercise are right for you. Remember that any activity, even as simple as stretching, breathing exercises and walking, can make a world of difference.

Eating well

Eating sensible, healthy food to stay healthy is common sense. What you may not know is that the simple act of breathing requires a great deal of energy, and even more so if you have COPD. Eating regular and healthy meals gives you the energy you need for all your daily activities.

Eating well means following “[Canada’s Guide to Healthy Eating](#)”. Consume a variety of foods from different food groups that are low in fat and salt and high in nutrients.

Some people with COPD lose weight without trying as part of the COPD symptoms they experience. If this applies to you or if you don’t have much of an appetite, make sure to choose foods that are high in nutritional value and calories and supplement your diet with liquid meal preparations. You can also eat small meals more frequently throughout the day instead of three big meals; many small meals are also helpful for people with COPD who get short of breath if they eat too much at once.

Pulmonary rehabilitation

Pulmonary rehabilitation (also called respiratory rehabilitation) is strongly recommended for most people with COPD. Rehabilitation programs teach people with COPD breathing techniques that help them get the most out of each breath. They also talk about how to exercise, and allow participants to practice with the group. Patients can benefit from rehabilitation programs at any stage of their disease.

These programs, often led by a respiratory therapist, nurse, or cardiopulmonary physiotherapist, are usually offered at hospitals. They also often require a referral from a doctor, so make sure to discuss this treatment option with your doctor during your next appointment to find out about programs offered in your area.

Links to websites with information on COPD:

Canadian Lung Association:
www.lung.ca

COPD HELP
www.COPDHelp.ca

Resources and links to help with quitting smoking:

Health Canada:
<http://www.hc-sc.gc.ca/hl-vs/tobac-tabac/quit-cesser/index-eng.php>

Stupid (Anti-Smoking Website):
www.stupid.ca

Canada’s Guide to Healthy Eating:
<http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php>

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